

REMARKS

Claims 2, 9, and 11 have been cancelled. Independent claims 1 and 8 have been amended to incorporate the subject matter of the cancelled dependent claims. Various amendments of a technical nature have been made to the remaining claims, making terminology consistent with prior amendments and similar clarifications of a self-evident nature, which are not intended to limit the scope of the claims. No new matter has been added.

Applicant's invention comprises a wide area communication system wherein individual receivers extract and decode primary data packets uniquely addressed to them from a broadband signal containing primary data packets addressed to many different receivers. At a relay station (e.g., a communications satellite), receiver address and start time information are separated from the plurality of primary data packets. A narrow band beam transmits an index signal containing these addresses and start times to the receivers. A broadband beam carries the primary data packets to the receivers. Each receiver monitors the index signal in real time, searching for its unique address, while buffering the broadband primary data signal. Upon detection of its address, a receiver then utilizes the start time and other identifying data in the index packet to access the relevant primary data packet from the buffer. The receiver of the present invention employs twin parallel receiver paths – one for the broadband primary data signal, which includes a buffer memory, and another for the narrow band index signal, which includes a control circuit that activates the primary data receiver path and indexes the buffer to extract the data packets.

In response to the Final Office Action of May 16, 2001, Applicant has amended the claims herein to explicitly recite the broadband and narrow band nature of the primary data signal and index signal, respectively. The claims have also been amended to explicitly recite that the index signal is extracted from the primary data signal at a relay station. These amendments fully address all issues with respect to claims 1, 8, 17 and 19 as articulated by the Examiner in the first paragraph of page 5 of the Final Office Action.

The Examiner asserted in the second and third paragraphs of page 5 that the information packet of service update information disclosed by Sugita anticipates the present invention. The Examiner stated, “[Sugita] anticipates the claimed subject matter of transmitting address of the terminals followed by the information packet. Terminals examine **their individual address** for the reception of the information packet.” (emphasis in original). This is erroneous.

Sugita discloses a method of distributing broadcast information, such as weather reports, stock data, etc., to all subscribing mobile terminals in a CDMA cellular system. Sugita additionally broadcasts an index packet, however the index packet does not contain individual receiver addresses – it contains the version of the broadcast information. By examining the version number associated with the broadcast information, each receiver may independently determine whether it needs to receive the broadcast, or alternatively whether the currently broadcast information would be redundant of the information it last received. There are no individual addresses in the index signal of Sugita for terminals to examine.

Turning to the claim rejections, the Examiner has maintained the rejection of claims 1, 4-10, and 13-20 under 35 U.S.C. § 102(e) as being anticipated by Sugita. As discussed above, claims 1, 8, and 17, as amended, distinguish patentably over Sugita, as each includes the explicit limitations of broad band data and narrowband index signals, the index signal extracted from the data signal, and further that individual receiver addresses are transmitted as part of the index signal.

Claim 19 was rejected under Figs. 8 and 9. Fig. 9 depicts only a block diagram representation of a Mobile Terminal Device 50. While the Mobile Terminal Device 50 is depicted receiving two data streams, nothing in Fig. 9 indicates that the Mobile Terminal Device 50 has two separate signal demodulating and decoding paths, as is recited in claim 19. In fact, Fig. 8 depicts just the opposite – a single antenna 21 feeds a single antenna combiner 22, generating signal S1 that is input to a single high frequency amplifier 23, the output of which feeds a single quadrature detection circuit 24. S2, the output of the quadrature detection circuit 24, is distributed to a plurality of demodulators. This represents an implementation of diversity reception, a well-known technique utilized in CDMA communications to counter fading and signal degradation due to multi-path propagation. However, a diversity receiver comprises only a single signal reception and processing path. It receives one signal on one frequency with one spectral pattern, and extracts therefrom one information signal – the temporary fan-out to multiple demodulators and subsequent re-combining into a single signal is, as is well-known in the art, merely a technique to improve the signal-to-noise ratio in the single received signal. Accordingly, all of the demodulators 26, 27, 28 of Fig. 8 ultimately feed the same decoder 31. In stark contrast, Claim 19 clearly recites first and second signal

processing means for demodulating and decoding separate received signals. The present amendments to Claim 19 further define separate data paths, as one is explicitly adapted to a broadband signal and the other to a narrow band signal. Claim 19 thus defines patentably over the art of record.

All pending claims in the instant application, as amended herein, are patentably novel and non-obvious over the cited art. Prompt allowance of all pending claims is therefore respectfully requested.

Respectfully submitted,
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Version with Markings to Show Changes Made

Amendments in the Claims

In accordance with 37 C.F.R. § 1.121(c), the following versions of the claims as rewritten by the foregoing amendment show all the changes made relative to the previous versions of the claims.

1. (Thrice Amended) A method of transmitting data in a digital communication system between a [transmitting] relay station and a plurality of receivers, said [transmitting] method comprising:

- [a)] [generating] transmitting from said relay station to said plurality of receivers a primary data signal containing a plurality of primary data packets, each said primary data packet intended for a specific one of said receivers.
- [b) transmitting said primary data signal over a broadband channel to said plurality of transceivers;]
- [c)] transmitting an index signal over a narrow band channel from said [transmitting] relay station to said plurality of receivers, wherein said index signal comprises a plurality of index data packets, each said index data packet corresponding to a respective one of said primary data packets and containing address information addressing a specific one of said receivers, said index signal extracted from said primary data signal;
- [d)] receiving and decoding said index signal at said plurality of receivers;

- [e)] determining and selecting, at each said receiver, those primary data packets in said primary data signal that are intended for said receiver based on address information in said index data signals; and
- [f)] extracting and decoding the selected primary data packets in said primary data signal at said plurality of receivers.

3. (Amended) The method of claim 1 wherein the index signal is transmitted at the same rate as the [information] primary data signal.

4. (Amended) The method of claim 1 where [the receiving means] each receiver demodulates and decodes the [first] index data signal in real-time.

8. (Thrice Amended) A method of transmitting data in a digital communication system between a transmitting station and a plurality of receivers, said transmitting method comprising:

- [a)] transmitting a primary data signal from said transmitting station to a relay station, wherein said primary data signal contains a plurality of primary data packets, each said primary data packet intended for a specific one of said receivers;
- [b)] extracting a plurality of index data packets from said primary data signal at said relay station, wherein each said index data packet corresponds to a respective one of said primary data packets and contains address information addressing a specific one of said receivers;

- [c)] re-transmitting said primary data signal from said relay station to said plurality of receivers over a broadband channel;
- [d)] transmitting an index signal from said relay station to said plurality of receivers over a narrow band channel, wherein said index signal contains said plurality of index data packets extracted from said primary data signal for selecting said primary data packets in said primary data signal;
- [e)] receiving and decoding said index signal at said plurality of receivers;
- [f)] determining and selecting, at each said receiver, those primary data packets in said primary data signal that are intended for said receiver based on address information in said index data signal;
- [g)] extracting and decoding the selected primary data packets in said primary data signal at said plurality of receivers.

10. (Amended) The method of claim 8 where the [information] primary data signal is transmitted at a rate of variable bit rates from 2 Mbps to 64 Mbps.

12. (Amended) The method of claim 8 wherein the index signal is transmitted at the same rate [of] as the [information] primary data signal.

13. (Amended) The method of claim 8 [where the receiving means demodulates and decodes the first index data signal] wherein receiving and decoding said index signal at said plurality of receivers is done in real-time.

14. (Amended) The method of claim 8 [wherein the information] further comprising the step of temporarily buffering the primary data signal [is temporarily buffered by the receiver for later] prior to its demodulation and decoding.

15. (Amended) The method of claim 8 wherein the index signal includes a plurality of packets, each packet in said index signal including an identification field containing information for identifying a particular receiver and a packet identification field for identifying corresponding packet(s) start time in said [information] primary data signal.

16. (Amended) The method of claim 8 wherein the packets in the index signal correspond to the packets in the [information] primary data signal.

17. (Amended) A broadband communications system comprising:

[a] a [transmitting] relay station including:

[i)] receiving means for receiving a broadband primary data signal;

[ii)] first transmitting means for transmitting [a] said broadband [information] primary data signal to a plurality of receivers, wherein said broadband signal [having] includes a plurality of data packets each addressed to a selected receiver; and

[iii)] a second transmitting means for transmitting [an] a narrow band index signal extracted from said primary data signal, said index signal including addressing information for identifying the location of data packets in said broadband signal

intended for a selected receiver and the start time of those packet(s) [in that receiver]; and

[b)] a plurality of receivers for receiving said [information] primary data signal and said index signal, each receiver including:

[i)] a first signal processing means for demodulating and decoding said index signal to extract said addressing information;

[ii)] a second signal processing means for demodulating and decoding said [information] primary data signal; and

[iii)] control means for selectively activating said second signal processing means based on addressing information in said index signal.

18. (Amended) The communication system of claim 17 wherein said receiver further includes an input buffer for temporarily storing said received [information] primary data signal before demodulating and decoding portions of said [its own information] primary data signal.

19. (Amended) A receiver for a broadband communication system comprising:

[a)] a first signal processing means for demodulating and decoding a received narrow band index signal to extract addressing information contained in said index signal;

[b)] a second signal processing means for demodulating and decoding a received broadband [information] primary data signal; and

[c)] control means for selectively activating said second signal processing means based on addressing information in said index signal.

20 (Amended) The communication system of claim [21] 19 wherein said receiver further includes an input buffer for temporarily storing said received [information] primary data signal before demodulating and decoding portions of said [its own information] primary data signal.